WHAT IS CLAIMED IS:

1. A method for treating cancer comprising administering to a subject in need of such treatment a therapeutically effective amount of

(a) a member selected from an inhibitor of a protein kinase, an enantiomer of such a compound, a prodrug of such a compound, a pharmaceutically acceptable salt of such a compound, and combinations thereof; and

(b) an agent that inhibits a cellular ATP synthetic pathway.

2. The method of claim 1, wherein the agent that inhibits a cellular ATP synthetic pathway is a member selected from an inhibitor of inosine monophosphate dehydrogenase (IMPDH), an enantiomer of such a compound, a prodrug of such a compound, a pharmaceutically acceptable salt of such a compound, and combinations thereof.

3. The method of claim 2, wherein the IMPDH inhibitor is selected from the group consisting of mizoribine, mizoribine aglycone, mycophenolate mofetil, tiazofurin, viramidine, and ribivarin.

4. The method of claim 2, wherein the protein kinase inhibitor is a member selected from an inhibitor of a receptor tyrosine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

5. The method of claim 4, wherein the inhibitor of the receptor tyrosine kinase is Gleevec.

6. The method of claim 5, wherein the receptor tyrosine kinase is selected from the group consisting of Bcr-Abl, Abl, PDGFR, and c-kit.

7. The method of claim 5, wherein the receptor tyrosine kinase is Bcr-Abl and the cancer is chronic myologenous leukemia.

8. The method of claim 5, wherein the receptor tyrosine kinase is c-kit and the cancer is gastrointestinal stromal tumor.

9. The method of claim 4, wherein the inhibitor of the receptor tyrosine kinase is selected from the group consisting of AD1839 (Iressa), OSI-774, PKI116, GW2016, EKB-569, and CI1033.

10. The method of claim 9, wherein the receptor tyrosine kinase is selected from the group consisting of ErbB1, ErbB2, ErbB3, and ErbB4.

11. The method of claim 9, wherein the inhibitor of the receptor tyrosine kinase is AD1839 (Iressa).

12. The method of claim 9, wherein the cancer is selected from the group consisting of non-small-cell lung cancer, squamous cell carcinoma of the head and neck, and hormone refractory prostate cancer.

13. The method of claim 2, wherein the protein kinase inhibitor is a member selected from an inhibitor of a serine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

14. The method of claim 13, wherein the inhibitor of a serine kinase is selected from the group consisting of isopentenyladenine, 6-dimethylaminopurine, olomoucine, roscovitine, CVT-313, purvanol, butyrolactone-I, flavopiridols, staurosporine, indirubins, hymenialdesine, and paullones.

15. A composition for treating cancer in a subject in need of such treatment comprising therapeutically effective amounts of

(a) a member selected from an inhibitor of a protein kinase, an enantiomer of such a compound, a prodrug of such a compound, a pharmaceutically acceptable salt of such a compound, and combinations thereof; and

(b) an agent that inhibits a cellular ATP synthetic pathway.

16. The composition of claim 15, wherein the agent that inhibits a cellular ATP synthetic pathway is a member selected from an inhibitor of inosine monophosphate dehydrogenase (IMPDH), an enantiomer of such a compound, a prodrug of such a compound, a pharmaceutically acceptable salt of such a compound, and combinations thereof.

17. The composition of claim 16, wherein the IMPDH inhibitor is selected from the group consisting of mizoribine, mizoribine aglycone, mycophenolate mofetil, tiazofurin, viramidine, and ribivarin.

18. The composition of claim 16, wherein the protein kinase inhibitor is a member selected from an inhibitor of a receptor tyrosine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

19. The composition of claim 18, wherein the receptor tyrosine kinase inhibitor is selected from the group consisting of Gleevec, AD1839 (Iressa), OSI-774, PKI116, GW2016, EKB-569, and CI1033.

20. The composition of claim 16, wherein the protein kinase inhibitor is a member selected from an inhibitor of a serine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

21. The composition of claim 20, wherein the inhibitor of a serine kinase is selected from the group consisting of isopentenyladenine, 6-dimethylaminopurine, olomoucine, roscovitine, CVT-313, purvanol, butyrolactone-I, flavopiridols, staurosporine, indirubins, hymenialdesine, and paullones.

22. The method of claim 1, wherein the agent that inhibits a cellular ATP synthetic pathway is a member selected from an inhibitor of the *de novo* pathway of purine biosynthesis, a prodrug therefor, or a pharmaceutically acceptable salt thereof, and combinations thereof.

23. The method of claim 22, wherein the inhibitor of the *de novo* pathway of purine biosynthesis is selected from the group consisting of L-alanosine, methotrexate, trimetrexate, 10-propargyl-5,8-dideazafolic acid (PDDF), *N*-[5-[*N*-(3,4-dihydro-2-methyl-4-oxoquinazolin-6-ylmethyl)-*N*-methylamino]-2-thenoyl]-L-glutamic acid (ZD1694, Tomudex), *N*-[4-[2-(2-amino-3,4-dihydro-4-oxo-7*H*-pyrrolo[2,3-*d*]-pyrimidin-5-yl)ethyl]-benzoyl]-L-glutamic acid (LY231514), 6-(2'-formyl-2'naphthyl-ethyl)-2-amino-4(3*H*)-oxoquinazoline (LL95509), (6*R,S*)-5,10-dideazatetrahydrofolic acid (DDATHF), 4-[2-(2-amino-4-oxo-4,6,7,8-tetrahydro-3*H*pyrimidino[5,4,6][1,4]-thiazin-6yl)-(*S*)-ethyl]-2,5-thienoylamino-L-glutamic acid (AG2034), and *N*-[5-(2-[(2,6-diamino-4(3*H*)-oxopyrimidin-5-yl)thio]ethyl)thieno-2-yl]-L-glutamic acid (AG2009).

24. The method of claim 22, wherein the protein kinase inhibitor is a member selected from an inhibitor of a receptor tyrosine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

25. The method of claim 24, wherein the inhibitor of the receptor tyrosine kinase is Gleevec.

26. The method of claim 25, wherein the receptor tyrosine kinase is selected from the group consisting of Bcr-Abl, Abl, PDGFR, and c-kit.

27. The method of claim 25, wherein the receptor tyrosine kinase is Bcr-Abl and the cancer is chronic myologenous leukemia.

28. The method of claim 25, wherein the receptor tyrosine kinase is c-kit and the cancer is gastrointestinal stromal tumor.

29. The method of claim 24, wherein the inhibitor of the receptor tyrosine kinase is selected from the group consisting of AD1839 (Iressa), OSI-774, PKI116, GW2016, EKB-569, and CI1033.

30. The method of claim 29, wherein the receptor tyrosine kinase is selected from the group consisting of ErbB1, ErbB2, ErbB3, and ErbB4.

31. The method of claim 29, wherein the inhibitor of the receptor tyrosine kinase is AD1839 (Iressa).

32. The method of claim 29, wherein the cancer is selected from the group consisting of non-small-cell lung cancer, squamous cell carcinoma of the head and neck, and hormone refractory prostate cancer.

33. The method of claim 22, wherein the protein kinase inhibitor is a member selected from an inhibitor of a serine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

34. The method of claim 33, wherein the inhibitor of a serine kinase is selected from the group consisting of isopentenyladenine, 6-dimethylaminopurine,

olomoucine, roscovitine, CVT-313, purvanol, butyrolactone-I, flavopiridols, staurosporine, indirubins, hymenialdesine, and paullones.

35. The method of claim 22, wherein the cancer comprises a population of cells deficient in the enzyme methyladenosine phosphorylase (MTAP).

36. A method for treating cancer in a subject in need of such treatment, wherein the cancer comprises of a population of cells deficient in the enzyme methlyadenosine phosphorylase (MTAP), comprising:

administering to the subject a therapeutically effective amount of a member selected from an inhibitor of a protein kinase, an enantiomer of such a compound, a prodrug of such a compound, a pharmaceutically acceptable salt of such a compound, and combinations thereof.

37. The method of claim 36, wherein the protein kinase inhibitor is a member selected from an inhibitor of a receptor tyrosine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

38. The method of claim 37, wherein the receptor tyrosine kinase inhibitor is selected from the group consisting of Gleevec, AD1839 (Iressa), OSI-774, PKI116, GW2016, EKB-569, and CI1033.

39. The method of claim 36, wherein the protein kinase inhibitor is a member selected from an inhibitor of a serine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

40. The method of claim 39, wherein the inhibitor of a serine kinase is selected from the group consisting of isopentenyladenine, 6-dimethylaminopurine, olomoucine, roscovitine, CVT-313, purvanol, butyrolactone-I, flavopiridols, staurosporine, indirubins, hymenialdesine, and paullones.

41. The composition of claim 15, wherein the agent that inhibits a cellular ATP synthetic pathway is a member selected from an inhibitor of the *de novo* pathway of purine biosynthesis, a prodrug therefor, or a pharmaceutically acceptable salt thereof, and combinations thereof.

42. The composition of claim 41, wherein the inhibitor of the *de novo* pathway of purine biosynthesis is selected from the group consisting of L-alanosine, methotrexate, trimetrexate, 10-propargyl-5,8-dideazafolic acid (PDDF), *N*-[5-[*N*-(3,4-dihydro-2-methyl-4-oxoquinazolin-6-ylmethyl)-*N*-methylamino]-2-thenoyl]-L-glutamic acid (ZD1694, Tomudex), *N*-[4-[2-(2-amino-3,4-dihydro-4-oxo-7*H*-pyrrolo[2,3-*d*]-pyrimidin-5-yl)ethyl]-benzoyl]-L-glutamic acid (LY231514), 6-(2'-formyl-2'naphthyl-ethyl)-2-amino-4(3*H*)-oxoquinazoline (LL95509), (6*R,S*)-5,10-dideazatetrahydrofolic acid (DDATHF), 4-[2-(2-amino-4-oxo-4,6,7,8-tetrahydro-3*H*pyrimidino[5,4,6][1,4]-thiazin-6yl)-(*S*)-ethyl]-2,5-thienoylamino-L-glutamic acid (AG2034), and *N*-[5-(2-[(2,6-diamino-4(3*H*)-oxopyrimidin-5-yl)thio]ethyl)thieno-2-yl]-L-glutamic acid (AG2009).

43. The composition of claim 41, wherein the protein kinase inhibitor is a member selected from an inhibitor of a receptor tyrosine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

44. The composition of claim 43, wherein the receptor tyrosine kinase inhibitor is selected from the group consisting of Gleevec, AD1839 (Iressa), OSI-774, PKI116, GW2016, EKB-569, and CI1033.

45. The composition of claim 41, wherein the protein kinase inhibitor is a member selected from an inhibitor of a serine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

46. The composition of claim 45, wherein the inhibitor of a serine kinase is selected from the group consisting of isopentenyladenine, 6-dimethylaminopurine, olomoucine, roscovitine, CVT-313, purvanol, butyrolactone-I, flavopiridols, staurosporine, indirubins, hymenialdesine, and paullones.

47. The method of claim 1, wherein the agent that inhibits a cellular ATP synthetic pathway is a member selected from an inhibitor of the salvage pathway of ATP biosynthesis, a prodrug therefor, or a pharmaceutically acceptable salt thereof, and combinations thereof.

48. The method of claim 47, wherein the inhibitor of the salvage pathway of ATP biosynthesis is selected from the group consisting of N7-((1'R,2'S,3'R,4'S)-2',3'-

dihydroxy-4'-amino-cyclopentyl)-4-amino-5-bromo-pyrrolo[2,3-a]pyrimidine , 5'-aminotubercidin, 5-amino-5'-deoxyadenosine, 5'-deoxy-5'-amino-clitocine, 4-amino-5-(3-bromophenyl)-7-(6-morpholino-pyridin-3-yl)pyrido[2,3-d]pyrimidine, 5-iodotubercidin (5-IT), and 5'-deoxy,5-iodotubercidin (5'd-5IT).

49. The method of claim 47, wherein the protein kinase inhibitor is a member selected from an inhibitor of a receptor tyrosine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

50. The method of claim 49, wherein the receptor tyrosine kinase inhibitor is selected from the group consisting of Gleevec, AD1839 (Iressa), OSI-774, PKI116, GW2016, EKB-569, and CI1033.

51. The method of claim 47, wherein the protein kinase inhibitor is a member selected from an inhibitor of a serine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

52. The method of claim51, wherein the inhibitor of a serine kinase is selected from the group consisting of isopentenyladenine, 6-dimethylaminopurine, olomoucine, roscovitine, CVT-313, purvanol, butyrolactone-I, flavopiridols, staurosporine, indirubins, hymenialdesine, and paullones.

53. The composition of claim 15, wherein the agent that inhibits a cellular ATP synthetic pathway is a member selected from an inhibitor of the salvage pathway of ATP biosynthesis, a prodrug therefor, or a pharmaceutically acceptable salt thereof, and combinations thereof.

54. The composition of claim 53, wherein the inhibitor of the salvage pathway of ATP biosynthesis is selected from the group consisting of N7-((1'R,2'S,3'R,4'S)-2',3'-dihydroxy-4'-amino-cyclopentyl)-4-amino-5-bromo-pyrrolo[2,3-a]pyrimidine , 5'-aminotubercidin, 5-amino-5'-deoxyadenosine, 5'-deoxy-5'-amino-clitocine, 4-amino-5-(3-bromophenyl)-7-(6-morpholino-pyridin-3-yl)pyrido[2,3-d]pyrimidine, 5-iodotubercidin (5-IT), and 5'-deoxy,5-iodotubercidin (5'd-5IT).

55. The composition of claim 53, wherein the protein kinase inhibitor is a member selected from an inhibitor of a receptor tyrosine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

56. The composition of claim 55, wherein the receptor tyrosine kinase inhibitor is selected from the group consisting of Gleevec, AD1839 (Iressa), OSI-774, PKI116, GW2016, EKB-569, and CI1033.

57. The composition of claim 53, wherein the protein kinase inhibitor is a member selected from an inhibitor of a serine kinase, a prodrug therefor, a pharmaceutically acceptable salt thereof, and combinations thereof.

58. The composition of claim 57, wherein the inhibitor of a serine kinase is selected from the group consisting of isopentenyladenine, 6-dimethylaminopurine, olomoucine, roscovitine, CVT-313, purvanol, butyrolactone-I, flavopiridols, staurosporine, indirubins, hymenialdesine, and paullones.